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10/643,255	08/18/2003	Gang Yu	UC0203USNA	4635

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E I DU PONT DE NEMOURS AND COMPANY  
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4417 LANCASTER PIKE  
WILMINGTON, DE 19805

EXAMINER

SCHILLINGER, LAURA M

ART UNIT PAPER NUMBER

2813

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/643,255

Applicant(s)

YU ET AL.

Examiner

Laura M Schillinger

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 1 and 27-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/25/04 & 12/15/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-26, drawn to a method, classified in class 427, subclass 68.
- II. Claims 27-34, drawn to a device, classified in class 313, subclass 504.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the discreet wells may be formed with or without an additional halogen element; moreover the dopant layer may be patterned or unpatterned.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II and vice versa, restriction for examination purposes as indicated is proper.

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This application contains claims directed to the following patentably distinct species of the claimed invention:

Group I:

Species 1, claims 1, pertaining to a method including depositing at least one patterned dopant layer in at least one of the wells without surface treatment;

Species 2, claims 2-26, pertaining to a method including discrete wells in sets of three to define a subpixel;

Group II:

Species 1, claim 27, pertaining to the EL device produced by the method of claim 2;

Species 2, claims 28-31, pertaining to an EL device with discrete well walls free from F;

Species 3, claims 32-34, pertaining to an EL device wherein the subpixel exhibits photoluminescence spectrum displaying omission only from the first dopant..

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, there is no generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after

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the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

During a telephone conversation with Mary Ann Capria on 11/5/04 a provisional election was made with traverse to prosecute the invention of Group I, Species 2, claims 2-26.

Affirmation of this election must be made by applicant in replying to this Office action. Claims 1, 27-34 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 2-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Sakaguchi et al ('519).

Sakaguchi teaches the following claimed limitations as cited below:

A method for producing full color, subpixellated organic EL device comprising:

- a) providing a substrate (Fig. 1 (1)),
- b) depositing an anode layer onto said substrate (Fig. 1 (2)),
- c) establishing a plurality of discreet wells in sets of three on said substrate, wherein said discreet wells are formed by circumscribing walls to form said wells, wherein each well defines a subpixel and each set of three wells defines a pixel (Fig. 1 (4a)),
- d) depositing a buffer layer onto said anode layer in each of said wells (Fig. 1 (6)),
- e) depositing an unpatterned EL host polymer layer selected to produce blue light in each of said wells (Fig. 3 (14B)),
- f) depositing a first patterned dopant layer selected to produce red light in a first well in at least one of said set of three wells without prior surface treatment of said walls of said well (Fig. 3 (14R))),
- g) depositing a second patterned dopant layer selected to produce green light in a second well in at least one of said set of three wells without prior surface treatment of said walls of said well (Fig. 3 (14G)),
- h) depositing a cathode layer, thereby producing a full-color, subpixellated electroluminescent device (Fig. 3 (7)).

3. A method according to claim 2, wherein said EL device is an active matrix full-color EL device (Col. 7-8, lines: 50-5).

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4. A method according to claim 2, wherein said EL device is a passive matrix full-color EL device(Col.7-8, lines: 50-5).
5. A method according to claim 2, wherein said walls circumscribe rectangular wells, circular wells, oval wells, or triangular wells (Fig.3 (14)).
6. A method according to claim 2, wherein said first and said second dopants are diffused into said EL host polymer layer to form monolayers in said wells (Fig.3 (14)).
7. A method according to claim 6, wherein said first and said second dopants are diffused into said EL host polymer layer by wetting of said host polymer layer by a polymer solution containing said first or said second dopant (Col.5-6, lines: 60-15).
8. A method according to claim 6, wherein said first and said second dopants are diffused into said EL host polymer layer by wetting of said host polymer layer by a polymer solution containing said first or said second dopant(Col.5-6, lines: 60-15).
9. A method according to claim 8; wherein said wetting produces a gradient density profile in said host polymer(Col.5-6, lines: 60-15).

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10. A method according to claim 9, wherein an unpatterned EL host polymer layer that optionally emits blue light is deposited immediately prior to deposition of said cathode layer (Col.6, lines: 15-25).

11. A method according to claim 2 wherein said anode layer is selected from mixed oxides of the Group 2 elements, the elements in Groups 4-6, and the elements in Groups 8-14 (Col.5, lines: 50-55).

12. A method according to claim 11, wherein said anode layer is selected from mixed oxides of the elements in Groups 12-14 (Col.1, lines: 50-55).

13. A method according to claim 11, wherein said anode layer is indium-tin oxide (Col.1, lines: 50-55).

14. A method according to claim 2, wherein said deposition of said anode layer or said cathode layer is selected from a chemical vapor deposition process, a physical vapor deposition process, and a spin-cast PIDCOSS (Col.6, lines: 30-40 and Col.8, lines: 20-25).

15. A method according to claim 14, wherein said chemical vapor deposition is selected from plasma-enhanced chemical vapor deposition ("PECVD") or metal organic chemical vapor deposition ("MOCVD") (Col.6, lines: 30-40 and Col.8, lines: 20-25).



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16. A method according to claim 14, wherein said physical vapor deposition is selected from sputtering, e-beam evaporation, and resistance evaporation (Col.8, lines: 20-25).

17. A method according to claim 14, wherein said physical vapor deposition is selected from rf magnetron sputtering and inductively- coupled plasma physical vapor deposition ("IMP-PVD") (Col.8, lines: 20-25).

18. A method according to claim 2 , wherein said buffer layer is selected from polyaniline (PANI) or polyethylenedioxythiophene (PEDOT), wherein said buffer layer is optionally doped with a protonic acid (Col.5, lines: 1-5).

19. A method according to claim 2, wherein said EL polymer layer is selected from polyparaphenylene vinylene (PPV), PPV copolymers, polyfluorenes, polyacetylenes, polyalkylthiophenes and derivatives thereof (Col.5, lines: 1-5).

20. A method according to claim 2, wherein said dopants are functionalized polymers comprising functional groups coordinated to at least one metal (Col.4, lines: 45-65).

21 . A method according to claim 2, wherein the polymer comprises functional groups selected from carboxylic acids, carboxylic acid salts, sulfonic acid groups, sulfonic acid salts, groups having an OH moiety, amines, imines, diimines, N-oxides, phosphines, phosphine oxides, and p-dicarbonyl groups (Col.4, lines: 45-65).

22. A method according to claim 20, wherein said at least one metal is selected from lanthanide metals, Group 7 metals, Group 8 metals, Group 9 metals, Group 10 metals, Group 11 metals, Group 12 metals, and Group 13 metals (Col.4, lines: 45-65).

23. A method according to claim 10, wherein said unpatterned El host polymer layer metal-chelated oxinoid compounds, phenanthroline-based compounds, and azole compounds (Col.4, lines: 45-65).

24. A method according to claim 23, wherein said unpatterned polymer layer comprises Alq3, z,g-dimethyld,7-diphenyl-1,10- phenanthroline ("DDPA"), 2,9-dimethy-4,7-diphenyl-1,10-phenanthroline ("DPA") 2-(4-biphenyl-5-4-t-butylphenyl-1,3,4.-oxadiazole ("PBD"), 3-4-biphenyl-4-phenyl-5-4-t-butylphenyl-1,2,4-triazole ("TAZ"), or combinations of any one or more thereof (Col.4, lines: 45-65)

25. A method according to claim 2, wherein said cathode layer comprises Group 1 metals, Group 2 metals, Group 12 metals, lanthanides, and actinides(Col.6, lines: 30-40).

26. A method according to claim 2, wherein said deposition of said buffer layer, EL host polymer layer, and dopant is processed by means of solution casting, drop casting, curtain casting, spin-coating, screen printing, and inkjet printing (Col.7, lines: 5-25).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura M Schillinger whose telephone number is (571) 272-1697. The examiner can normally be reached on M-T, R-F 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W Whitehead, Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
LMS

11/10/04